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Schools of Business should "strive to give understanding, which is the basis of foresight, and to encourage imagination and courage, which are the bases of action."

Reflections on the Schools of Business

Clare E. Griffin

ONE of the most significant facts in the development of business education in the United States in the past half century has been that the schools of business have grown up within the universities. The development of business education might well have taken a different course, as it did indeed in other countries in which it was placed in independent institutes. Also toward the end of the nineteenth century, numerous separate colleges of law and medicine existed in our large cities and it is conceivable that they might have come to dominate their respective fields. Speaking generally of the professional schools as well as of our own, I think it is very fortunate that they have instead grown to their present stature as parts of our great universities.

The process of integrating our new subject into the university programs has not been easy. It has called for a degree of patience and tolerance on the part of the previously established units and has placed a heavy burden upon the newcomers to rise to the levels and standards which were expected in a university. The educational leaders of the last half century in this country, both in and outside the business schools, can be very proud of the academic statesmanship and vision which our record displays and which has not commonly been shown in some of the other countries of the world. Its result has been to the advantage both of the professional schools and of the universities. It has contributed to a better set of ideals for the professional schools, and from the point of view of the universities as a whole, the successful absorption of the business and professional schools has contributed mightily to making these institutions vital parts of our whole community.

American Universities

That the position of the universities is a peculiarly vital one is beyond doubt. Among all the institutions in this country—government (national and local), the churches, fraternal organizations, occupational groups, foundations, and others—the university, or the great universities, if we choose to be more specific, enjoy a high prestige. The almost unique position, which the university holds in the minds of the American people, can be illustrated in many ways. Who would have believed, for example, a hundred years ago that the people under a system of universal suffrage

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The author desires to append the following note: "I wish to emphasize that these observations refer to the collegiate schools of business in general and not to any particular school. To make it clear, however, that these are my personal views, I have deliberately written in the first person singular."

would support with their tax dollars institutions of which the great mass of the taxpayers can have little direct knowledge and many of whose research activities are on subjects of which the common man has only the most vague comprehension. I am sure that the support of these great institutions by the people would have been a great surprise to Lord Macauley, who, early in the last century, took such a dim view of the possibilities of our democracy.

This high esteem of universities has been poetically expressed by John Masefield. He writes, "There are few earthly things more splendid than a university. In these days of broken frontiers and collapsing values, when the dams are down and the floods are making misery, when every future looks somewhat grim and every ancient foothold has become something of a quagmire, wherever a university stands, it stands and shines; wherever it exists, the free minds of men, urged on to full and fair enquiry, may still bring freedom into human affairs."

All of this I think we in the schools of business should keep in mind. We are still relative newcomers to the academic field, and it is the part of wisdom I believe for us always to bear in mind that to an important degree our strength lies in our association with the great tradition of the universities, and that we should capitalize upon that association rather than yield to the pressures for separatism which arise from time to time.

Accordingly, a consideration of the role of business education naturally starts with a consideration of the role of the university. The proliferation of the activities of the universities could easily become excessive. To avoid this result we should ask ourselves what are the services that a university can offer which cannot readily be obtained elsewhere. What are its *distinctive* reasons for being. Then the university as a whole and the schools of business in particular should devote themselves primarily to those ends.

The distinctive feature of the university is a pervasive attitude of inquiry, which may take the form of organized and formal research in some activities or simply of unhurried, deliberate thought in others. The objective and the end result of this attitude is an improved *understanding* of the basic nature of things, particularly of the world around us. The attainment of this objective is furthered by association over a period of years with a group of scholars. Ideally this means actual living in a university atmosphere. Courses of instruction given by correspondence or courses given to students who only visit the university buildings for those specific purposes and whose main occupations lie elsewhere are not most highly conducive to the development of the basic attitude of mind which should be the product of the university. I do not mean to say that the large city universities should not adapt themselves to the practical requirements of their community, but merely to suggest that they should recognize the special problem which this poses and do what they can to meet it.

Understanding and Foresight

I have said that the objective of the university was understanding. The practical need for understanding is that it provides the basis for foresight. Most of life on this planet in the biological sense is controlled by routine. The bees, for example, have a most elaborate social organization. Yet there could be no better illustration of the fact that a social organization does not necessarily involve understanding of it. Rather in this case it requires dependable instinctive reactions to stimuli. These reactions alone have succeeded in maintaining many forms of animal life through thousands of years. They obviously have great survival value. Likewise among human beings most of our activities are governed by routine, and the traditional ways of doing things or the "how-to-do-it" skills are our equivalents of the instinctive reaction of the bees. They serve very well so long as conditions do not change. It is when conditions do change that foresight is needed: in the first place to anticipate the changes, and in the second place to judge the probable consequences of some new line of

action. Understanding of the nature of the phenomenon and of the relations of cause and effect then becomes necessary.

There could hardly be a more trite observation than that we are living in a period of change. But it should nevertheless be emphasized, as Alfred North Whitehead said some thirty years ago, "If we compare the technologies of civilizations west of Mesopotamia at the epochs 100 A.D., the culmination of the Roman Empire, and 1400 A.D., the close of the Middle Ages, we find practically no advance in technology. There was some gain in metallurgy, some elaboration of clock work, some advance in the art of navigation with its influence still in the future. If we compare 1400 A.D. with 1700 A.D., there was a great change. Gun powder, printing, and navigation and the technique of commerce had produced their effect. But even the analogy between life in the eighteenth century and life in the great period of ancient Rome was singularly close. In the 50 years between 1780 and 1830 a number of inventions came with a rush into effective operation. The age of steam power and of machinery was introduced."

And the rate and magnitude of change since 1830 and especially since the turn of the century has been greatly accelerated, and I refer not only to the great world-shaking facts, such as the rise of new ideologies that have divided the world, and the introduction of radically new sources of energy, but also to such mundane matters as the shifts in markets, the increasing competition of the light metals, the development of the chemical industry, the changes in social and economic conditions that have affected the different classes of society, the shifts of population from cities to the suburbs, and so on, which present almost daily problems to the businessmen of the country.

This brief survey suggests a momentous conclusion, namely, that preparation for the work of the businessmen as well as for the statesmen or responsible men in any other walk of life cannot be based upon the assumption that even the near future will be a repetition of the past. If this is true, then the education of any who aspire to positions of responsibility must be in the gaining of *understanding* in addition to the skills which are designed to perform tasks under a fixed set of circumstances. The relevance of this for the growth of the universities and for that attitude of inquiry and emphasis upon basic understanding is obvious. Indeed this growing need in modern times for basic understanding is the real reason for our universities and perhaps the basis of the high prestige which they enjoy. And, too, it is the reason for the growth of the schools of business with their emphasis upon theory and investigation and basic understanding.

One might add parenthetically that the fact of less rapid change in some of the European countries and willingness to accept the implications of that fact tend to explain the much slower development of business education at the level with which we here are concerned in European countries than here. How otherwise can we explain the fact that the "nation of shopkeepers" has, until the last few years, paid virtually no attention to formal education for their shopkeepers? Their attitude seems to have been, and to a great extent still to be, that an adequate preparation for business can be obtained by learning through doing. The implication of all this for the schools of business is that the peculiar, though by no means the only, task of the school of business is to give an understanding of the nature of the phenomena with which the business man has to deal. Not that the teaching of the sheer how-to-do-it is useless, but that it is a function that can be performed elsewhere and perhaps just as effectively. The emphasis upon principles and theory and understanding is the peculiar contribution of the university, and it should, therefore, be exalted.

Liberal Education

Since the phenomena with which the businessman will be concerned are as manifold as life itself, the need for a liberal education is apparent. We do not need to go into the thorny question of a precise definition of a liberal education, but it obviously includes some

acquaintance with the basic fields of mathematics, science at least to the extent of some comprehension of its method and point of view, some knowledge of the great literature of the past and present, and some understanding of the social sciences. In my own view a considerable amount of study—as much as the time and resources of the student will permit—can well be devoted to these fields. Nor should they be regarded as "prebusiness subjects", for the very effort to give this "practical" slant to liberal studies is likely to be self-defeating.

This point, however, is a disputed one, and perhaps the best compromise between conflicting views is that this liberal education in relation to business education should emphasize the social sciences, particularly economics and history. My own teaching relies to a moderate degree upon a knowledge of the history of western civilization. I am often appalled at the widespread and almost complete ignorance of this field on the part of many of our students. This particular gap in the education of business students is deplorable. As President Hatcher of our University has said, "When people with no knowledge of history consider the problems of the present, it is like a committee starting with today's problems without reading the minutes of the last meeting."

But in giving this emphasis to liberal education as a basis for professional training, there is a danger in exaggerating the difference between the two. I do not want to suggest that upon one side of the campus one absorbs culture with a capital "C" and on the other side of the campus he learns how to make a living. If there is that distinction, it should serve as a challenge to us in the schools of business to make our subjects so fundamental, to infuse them with intellectual analysis, and to tie them in with the life of the nation and the world to such an extent that they will be recognized as truly liberal subjects in themselves. There is nothing unworthy about a subject which is vocational. Let us remember that the great universities of the past had their origin in vocational training. The great universities of the Middle Ages were engaged in the training of men for the Church and later for law and medicine. Harvard College was established to prepare men for the Christian ministry, not to provide decorative but useless learning for gentlemen of leisure. But it was the glory of these universities that they did not confine themselves to an apprenticeship type of training but rather strove to advance a fundamental understanding of the fields with which they were concerned.

So, too, it can be with business education. We are living in a business civilization, and no field of study deserves more serious and profound attention than the influence and forces which are involved in business. The fact is that there are no such things as dull and unworthy subjects. There are only dull and unworthy professors of those subjects. Accounting, with its problems of income and values, marketing, with its problems of the shifting demands of people, industrial relations, with its human problems of incentives, are as worthy and challenging subjects as any to be found in the universities. If the usual treatment in the schools of business does not measure up to the challenge, that perhaps is our fault and not the weakness of the subject itself. We have, I think, come far in the past few decades. We have much farther to go.

Errors to be Avoided

In this job of preparing young men for business several errors should be avoided. In the first place, we should not immodestly overstate our objectives. I do not know how many announcements of schools of business set forth as their object to "train for leadership." Actually is there not a slight contradiction in these terms? Training implies learning to do something which is well understood by the trainers or by the present practitioners; whereas real leaders, at least in a changing world, are innovators. What we can hope for is to impart understanding of the problems involved and perhaps to stimulate the natural qualities of imagination. If then the individual has the qualities of courage and judgment (a fancy term for good common sense) he may seize

opportunities to try out his ideas. If others follow he is a leader; if not he will probably be called a "crack pot." For, after all, a "leader" without followers is only a voice crying in the wilderness. The role of training in all this may be important but it should not be overstated. For one thing, exaggerated claims can be inimical to the humility that should characterize the novice.

Also the very names of many of our schools may be a bit pretentious. Perhaps the founders of these new schools some fifty years ago would have done better to call them simply "schools of business" following the precedent of engineering, medicine and law. Even though our law schools may hope that some of their alumni will become justices of the Supreme Court, they are, I think, to be commended for calling themselves merely "law schools."

The "Profession of Business"

A second error would be to take seriously the talk of after-dinner speakers about the coming "profession of business" or the "profession of management." The plain fact is that business is not a profession, and I for one hope it never will be. One of the characteristics of a profession is that its practitioners constitute a recognized group set aside in some respects from the rest of the community. In this dynamic business world managers may in fact come from any walk of life. There is also a danger in thinking of a selected group of properly trained men who represent the "crown princes of business." This concept, I think, has not been entirely avoided by some schools and some corporations. It may prove to be unfortunate, not only for the violation which it does to our democratic ideals, but for the impairment of the vitality of business, which has depended upon the variety of men and of backgrounds for its leadership.

Another characteristic of a profession is that certain standards are recognized as having value for their own sake. The engineers of a certain public utility company were lectured in my presence by their president who pointed out that, with all due respect for their standards as to the setting of poles and other matters of construction, he wanted them never to lose sight of the fact that the corporation existed to make a profit, and that at times these standards had to give way to practical requirements. Or as a certain senator once said, "Principles are all very well, but there are times when you have to rise above them."

In the third place a profession is constantly dominated by the ideal of service. A prominent executive recently said that the basic policy of his company was to give the very best service which was consistent with a fair compensation to employees and a fair rate of return to the investors. It happened that this official was representing a public utility company, and perhaps for that reason the statement was excusable. But to my mind it was quite inconsistent with the principles of capitalism. It was a statement of policy which gives aid and comfort to socialists, for if the executives are to determine what desirable service is and are to be motivated chiefly by this altruistic ambition, the question naturally arises why they should not be elected by the people.

This concept of "public service" as an objective of businessmen and concerns has been given increased endorsement in recent years. In a way and if properly understood it is commendable. Especially it is commendable that businessmen in their more reflective moments should appreciate that they play an important role in the well-being and economic power of the country. Much of my own teaching is directed to emphasizing that fact. But we should recognize that the distinctive feature of a free market system is that its splendid fruits are reached by indirection. It is like an individual's attainment of happiness; he does not attain happiness by trying to be happy. That condition comes upon him unexpectedly when he ceases pursuing it. And so with our business system. The paradox of capitalism is that it harnesses very ordinary motives for good ends.

The members of a profession can hardly admit, whatever the facts may be, that their main objective is profit. But the businessman

should not apologize for profits. They are the immediate and proper goal if we intelligently take a long-run view of profits. Granting this broad and long-run view should we not emphasize that the first obligation of a businessman is to run a profitable business? If he does that in fair competition he will serve the public well in making good use of the resources at his command, in providing the services that consumers want and in adding to the economic freedom of men as workers, investors and consumers.

The "Science of Business"

A fourth error is to talk of our field as the "science of business." Business is too wide and varied to be made a subject of science. Moreover, it is based upon individual decisions, and there is nothing inevitable about the nature of these decisions. With the highest human development of foresight and wisdom there will always be a considerable element of luck in the outcome, which is the reason why a good businessman must not only be wise, but he must also have courage.

If this seems to contradict earlier observations concerning the need for gaining understanding, let me say that I think that understanding is the proper goal, but I have no illusion that we shall ever perfectly attain it. Business will always be infused with uncertainty. Moreover, these decisions can be wiser if we draw upon the knowledge and perhaps the sciences of various fields which touch upon the activities of business. Specifically, it may be suggested that a school of business should cultivate assiduously its relations with such other divisions of the university as deal with engineering, psychology, and with such special activities as exist at a particular university, such as our own Institute of Human Relations, our School of Architecture and Design, School of Natural Resources, and so on. This is one of the more specific advantages of the school of business being associated with a university. There is hardly a field of study that cannot contribute to this varied and manifold subject of business. But this is not to say that business itself can ever be reduced to a science or that we would be well advised to try to make it so.

No, business is not a science, but an art. Its objective is action, not mere observation. And this suggests that for us in the schools of business this basic understanding, which I have stressed as our proper objective, consists not only in the discovery and elucidation of principles. It includes also a training in orderly analysis of problems in our field. We cannot teach the answers to real business problems with any confidence that those answers will be universal or permanent. The great value of the case method in certain fields (and I would emphasize this qualification) is in a training in this approach to business problems. This understanding, then, that is urged as our objective consists of a grasp of principles where they exist and training in methods of dealing with the problems that lie ahead. The more rapid the rate of change the more important are these general values and the less important the accepted answers of 1955.

Business is Action

The fact that business administration is action poses a special problem for teachers in the schools of business, for the man of action must not merely have knowledge or even wisdom, he must have imagination, initiative, and courage. The task of education is to discipline the mind. I think we should take care that in providing this discipline we do not dampen the enthusiasm, the imagination, and the daring of the young men under us. There is, I think, a special danger in the case method of instruction in that from the teacher's point of view an ideal case is one in which many errors were made. The teacher then can take some satisfaction in pointing out these errors and thus display his own superior wisdom, even though that may have the slight advantage of hindsight. The student can become so aware of the many dangers and pitfalls of business that he will lose the power of action. It has long been recognized that an overtraining of certain kinds can have this effect. Recall Hamlet and his self-accusing soliloquy that,

"The native hue of resolution
Is sicklied o'er with the pale cast of thought,
And enterprises of great pith and moment . . .
turn awry
And lose the name of action."

I hope this does not give aid and comfort to the anti-intellectualists. Rather, I wish to suggest positively that preparation for business must be not merely an intellectual process, but that inspiration and the encouragement to live dangerously for great rewards is a proper part of it. The creative spirit is a precious thing. It may be that we cannot create it, perhaps we can encourage it; but at least let us try not to quench it. Let us be warned by some university departments of English literature which produce literary critics but no authors, and some schools of music, which turn out musicologists but no composers. That this is a basic problem of business education as of all other formal education is perhaps suggested by the fact that so many graduates of our schools of business are the highly paid vice presidents or assistants to men who themselves never went to college or at least not to a school of business. Let us hope that with our own graduates "the native hue of resolution" will not be "sicklied o'er with the pale cast of thought" but that thought will serve to guide action.

Some Suggestions

Now as I attempt to reduce some of these thoughts to specific suggestions, I am aware that there are few black or white propositions in this field. First, I have suggested that life is made up of routine and adjustment to change. In terms of man hours or in terms of jobs, routine is still the dominant characteristic, and therefore it is essential that our students be taught "how to do things." Many of these things *can* be taught in the university, but most of them can be learned on the job as well or even better. We should not devote much of our time to doing those things which we merely *can do* at the expense of those things which *only we* can do. The task which we are particularly fitted to perform is delving into the fundamental nature of problems, the stressing of basic principles and indeed the discovering of those principles—in short, to the advancement of understanding, which is the basis of foresight. This means that we should not apologize for "theory" and attempt to exalt the "practical." If those words are taken in their usual senses, such an attitude gives support to the drift toward anti-intellectualism and in practice would mean the turning out of routinists instead of innovators.

A corollary of this line of thought as to curricula is that one should avoid the multiplication of course. A limited number of courses with emphasis upon fundamentals will serve better. On this same subject, too, I feel that the elective system has perhaps been carried too far especially in the early years of a program of study. If there are certain basic courses which should be followed by all future businessmen, more of these should presumably be required.

To bring about this kind of education requires most importantly teachers with first-class minds. I realize that brains are our most scarce resource and that, therefore, this is perhaps a counsel of perfection. We can, however, place the emphasis upon men of creative minds and seek out as best we can men of imagination and with a graduate training which is broad in nature. My own preference would be to seek out teachers of business subjects who had had a broad and substantial training in economics. At the University of Michigan we require, and I think rightly, that the candidate for the Ph.D. in Business Administration should have the same degree of preparation in economic theory as the candidate for the degree in the field of economics, and this is supplemented by a comprehensive examination testing the candidate's acquaintance with the whole field of economic policy.

Next I would suggest that the faculty should universally be engaged in some kind of research or creative scholarship. The function of teaching and research should not be separated. Each should vitalize the other.

Finally, I would suggest to all of my col-

leagues in the teaching of business administration that we never express or imply an apology for money motivation and individual incentives. These, when tempered with the long-run view, provide the only sound basis for a free market. The community will best be served by active competition conducted, of course, under the law and according to a code of decent standards of conduct. But if we go beyond this with excessive talk and emphasis upon the "social responsibilities" of business and the acceptance of "service" as an ideal, we will be denying the basic principle of individualism and of free enterprise. We will instead be playing into the hands of those who would prefer a controlled economy, a welfare state, and a reversion to status. There are strong tendencies in the world in that direction. It would be unfortunate if businessmen and business schools should aid that trend.

We as teachers should do our part in giving our students an appreciation of the social role of business but also an understanding of the subtle paradoxes that reconcile the individualistic profit motive with human welfare. We should strive to give understanding, which is the basis of foresight, and to encourage imagination and courage, which are the bases of action. With the aid of modern science and modern technology, enterprising business can do all that is humanly possible to keep our economic and social system as dynamic and progressive as it has been in the past. And this is a worthy goal, for its fruits are not merely in material living standards but in human freedom, too.

WHAT TO READ:—Sometimes in our browsing we come across a pocket-size book with more than pocket-size ideas. One of these books is ***Capitalism and the Historian,*** University of Chicago Press, 1954. Edited with an introduction by an eminent economist, F. A. Hayek, it contains essays by equally well-known historians; of special interest are ***The Treatment of Capitalism by Historians*** (T. S. Ashton) and ***The Anticapitalist Bias of American Historians*** (L. M. Hacker). Most of us are unaware or have never given thought to the way in which harmful myths become embalmed in economic history, so it is both entertaining and enlightening to observe the historians do battle with each other and with their conscience in the matter.

If facts alone made history it would be easier to assess the blame for many of our misconceptions. But facts must not only be accurately recorded, they must also be selected and interpreted. It is doubtful whether a meaningful, not to say readable, account of any period has ever been given except within the framework of some political conviction or economic prejudice. The particular point at issue in this case is the connection between human misery and the industrial revolution in England and America. That the industrial revolution was but the first faltering step toward the alleviation of human misery should today be self-evident, but the myth persists that a changing technology *caused* the unhappiness of a generation ago; witness the statement of Bertrand Russell that "the industrial revolution caused unspeakable misery both in England and America" and "this was due almost entirely to scientific technique."

The genesis of this legend is well detailed in the final essay, ***The Factory System of the Early Nineteenth Century,*** by W. H. Hutt. Here are outlined the origin and nature of that one-sided parliamentary investigation subsequently to be called the "Sadler's Committee Report" and to be repeated uncritically by later historians. Curious how its *ex parte* character suggests a recent report on the activities of educational foundations! Perhaps there will be the makings of legend here also.

These essays—they are all short—will more than repay the time it takes to read them.

(Continued on page 28)

How rational should we be about the purchase of a new car? The author suggests a novel approach.

What Price Your Ego? When to Trade a Car

Ronald S. Johnson

MR. Harlow Curtice has estimated that seven and a half million cars and trucks will be bought in the United States this year. If he is correct, this means that between six and six and a half million of us will visit dealers' showrooms in search of a new passenger car, coming away with a full garage and an empty purse. A lot more of us will dream of trading in our old car, but decide against it. But whether or not we decide to trade this year, the fact remains that nearly all of us are ignorant of the most important factor which should affect our decision:—price depreciation in the used car market. Yes, we are justified in buying the shiny new car when inflation of the ego is worth the price, but few of us know the price.

Perhaps your wife is tired of the old style. Maybe you want the dependability and added comfort of the new models. If your neighbor has angle-poised jet-propulsion, you can't afford to be without 12 volt trigger-torque. If he can unwrap himself from behind his windshield, you certainly want the pleasure of dismounting from all the new horsepower.

But how much in dollars and cents will this cost you? You can place a price tag on style, prestige, comfort, and dependability, if you analyze the replacement from the point of view of the pocketbook alone.

Financially speaking, there are only two considerations involved in replacing your current car:

1. The cost of keeping and operating it another year, and
2. The average annual cost of keeping and operating the bright new car as long as you have kept the old one (assuming you will drive the new about the same as the old).

Usually the latter cost will exceed the former. The difference measures the price of the intangible considerations. Buy the new car when you consider these intangibles to be worth their price.

Four types of cost enter into each of the above considerations: (1) simple operating costs, (2) repair costs, (3) insurance, and (4) depreciation.

Simple operating costs are expenditures for gas, oil, anti-freeze, and taxes. By and large they will be the same for both the old car and the new. (The added oil expense of the old car is probably very slight and, to the extent it exists, is offset by the added registration taxes associated with the new.) Since we are concerned only with the *difference* between the annual costs of the new and the old cars and because the simple operating costs are nearly the same for both, they may be neglected.

Repair costs are important for they are the

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major ones which can reduce the financial disadvantage of a new car and may even make a new car financially desirable. Automobile manufacturers and others have made studies of repair costs. The data are not reliable. The results are tenuous and secret. Furthermore, they probably do not apply to your particular car. For your old car, you are the expert. You know best the condition of its tires and recent maintenance costs. Yours is the best guess of these costs for next year. For your new car, a simple rule will help you estimate a minimum annual average repair cost:

> Divide your estimate of next year's maintenance costs on the old car by the number of years you have kept it.

Insurance cost is another on which you are your own authority. Presumably liability insurance costs will be the same for both cars and can therefore be neglected. Collision insurance may cost more for the new one than the old, if you want this protection for your new bundle of horsepower but not for the old jalopy. In any event, you know the cost and can supply your own best figures. Consequently, the balance of this article deals with depreciation about which most people know little.

Depreciation (loss of value) is the major cost of your new car and one of the important costs of keeping your old one. Its amount depends partially on your bargaining ability in both selling and buying; partially on the make, model, and condition of the car itself; and mostly on the length of time you keep the car. Before carrying the discussion of depreciation further, let us combine the above four types of cost in a sample computation of the cost of trading in your old car.

An Illustration

Assume you own a 1952 Ford and would like to trade it in on a new Chevrolet. You estimate next year's maintenance on the Ford to be about $150. From this information and data to be presented, the following computation is possible:

ANNUAL AVERAGE COSTS OF NEW CAR

1. Simple operating costs (same for both cars)	
2. Repair costs: ⅓ of $150 ..	$ 50
3. Insurance:	
Liability (Same, both cars)	
Collision	30
4. Depreciation (loss of value)	420
TOTAL	$500 per year

NEXT YEAR'S COST OF OLD CAR

1. Simple operating costs (same for both cars)	
2. Repair costs	$150
3. Insurance:	
Liability (same, both cars)	
Collision	
4. Depreciation (loss of value)	200
TOTAL	$350
Pocketbook disadvantage of trading	$150 next year

Depreciation is of major importance in both portions of the above sample computation. Yet it is the cost that amateurs in the auto business know least about. For both your new and your old car it is a matter of price, now and later. Therefore an understanding of depreciation as it affects your decision commences with a rational concept of the transactions and prices involved in trading for a new car. There are two transactions: (1) Selling your car, and (2) buying the new one. These are distinct and should be thought of separately. Merge them and the whole deal is confused.

You sell your used car in the wholesale market, with the possible exception of a troublesome sale to a private party. The price you get is no more than its value at the nearest used car wholesale auction. This is probably true if you advertise it in the paper. It is certainly true if you trade the car in or sell it to a dealer. If he wants your car and can find a customer, he will pay you no more than a car just like yours would cost at the auction. If he doesn't really want your car and can't

find a customer, he will have to sell it at the auction. He may talk a big price, but it's easy to offer $300 or even $500 over the auction value, if the same $300 or $500 is padded into the price of the new car. Thus the value of your car is approximately its auction price. Any over-allowance is a discount on the new car. Make no mistake on this point. Your dealer won't.

You buy your new car in the retail new car market which also is not as familiar to most of us as we like to believe. Its most important characteristic is the absence of a single price for the car you want to buy. At any one dealership on any single day the prices paid for identical models with similar equipment may differ as much as $600 for cars in the low priced field. This has been observed in so-called "clean-deals," purchases in which there is no trade-in. This is the basis on which you, in fact, trade. You sell your old car to the dealer at its auction value and buy the new car on a "clean-deal" basis. The price you actually pay depends on:

- What the dealer paid for the car.
- Where you live.
- The dealer's policy regarding high prices versus high volume.
- How much shopping you have done.
- How effective you are at bargaining.

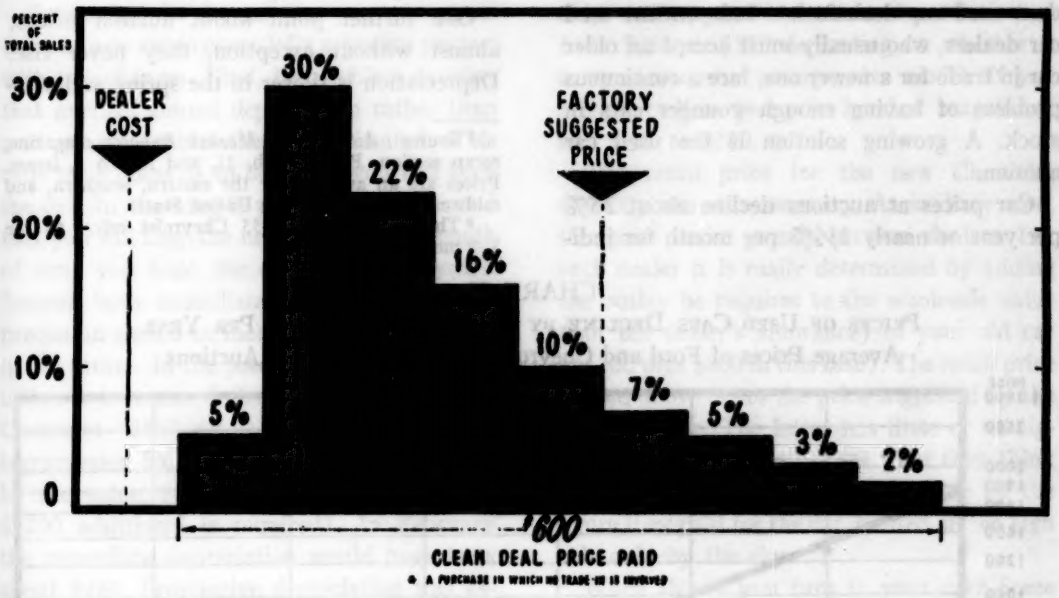
If you live out of town, have superior bargaining ability, and have shopped a number of dealers, you may be among the lucky people on the left of the frequency distribution shown in Chart I. If you live in the dealer's natural area, don't like to shop or bargain for your car, ask its price only as you make out the check, you can bet the price will be as much over that suggested by the factory as the dealer thinks you will stand.

The cycle of your car ownership is thus buying at retail and selling the same car some time later at wholesale. Then you start the whole process over again. Consequently, de-

CHART I

ONE MODEL CAR HAS MANY PRICES

A Typical Frequency Distribution of Clean-Deal* Prices Paid in One Area for One Model Car



* A PURCHASE IN WHICH NO TRADE-IN IS INVOLVED

preciation for the new car portion of the above sample computation is of two types: first, an immediate loss in value because you buy at retail and sell at wholesale, and second, a progressive loss in value because the wholesale price of a car declines as the car ages. For the old car portion, the depreciation which counts is the second type only, next year's decline in the auction price. Thus for both the old and the new car the wholesale auction price is the key to determining depreciation.

Auction Prices

Automobile auctions, where dealers buy and sell both new and used cars, have developed rapidly postwar. They are the channel through which many of the late model used cars traded in at new car dealerships pass to the independent used car dealer's lot. Independent used car dealers, who usually must accept an older car in trade for a newer one, face a continuous problem of having enough younger cars in stock. A growing solution is the used car auction.

Car prices at auctions decline about 25% per year or nearly 2½% per month for individual models. The average prices[1] in February of Ford Customline and Chevrolet "210" sedans with standard transmission illustrate this depreciation:

	AVERAGE WHOLESALE PRICE	
Model Year	*Ford V-8*	*Chevrolet (6)*
1955	$1783	$1731[2]
1954	1325	1226
1953	1016	953
1952	821	706
1951	558	555
1950	458	446
1949	314	334
1948	237	234

These prices, averaged for each model year, are plotted on a semi-log scale in Chart 2. The points fall in a straight line signifying a constant per cent depreciation in value.

One further point about auction prices: almost without exception, they never rise. Depreciation is slower in the spring and sum-

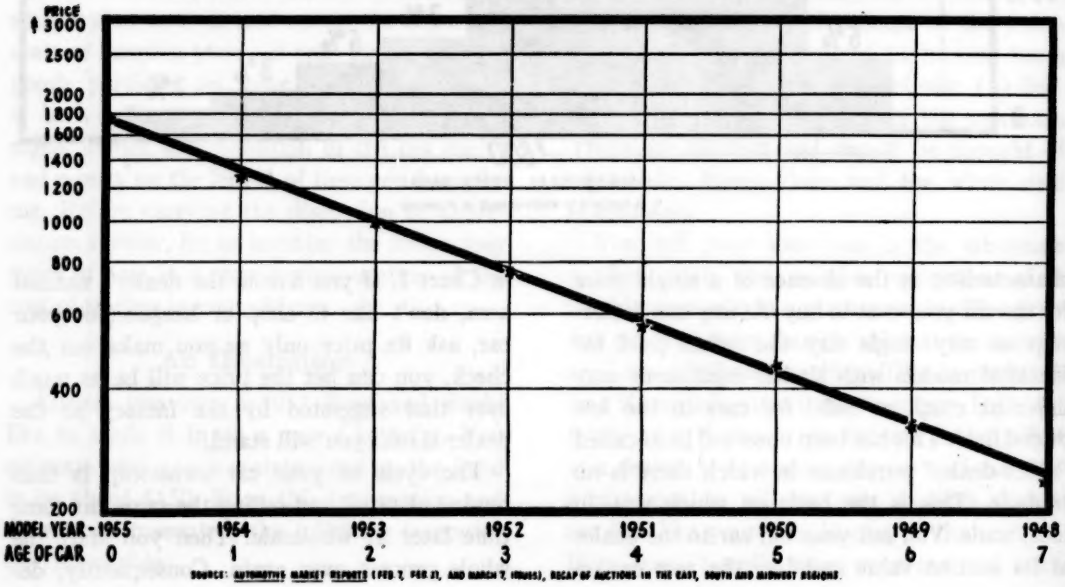
[1] Source: *Automotive Market Reports* magazine, recap section, Feb. 7, Feb. 21, and March 7, issues. Prices are an average for the eastern, southern, and midwestern regions of the United States.

[2] The price of the 1955 Chevrolet refers to the V-8 model.

CHART II

PRICES OF USED CARS DECLINE BY A CONSTANT PERCENT PER YEAR

Average Prices of Ford and Chevrolet Sedans at February Auctions



SOURCE: AUTOMOTIVE MARKET REPORTS (FEB 7, FEB 21, AND MARCH 7, ISSUES), RECAP OF AUCTIONS IN THE EAST, SOUTH AND MIDWEST REGIONS.

mer months; more rapid from October to January; but it always takes place. Barring a war or major inflation, your car will never be worth more than it is right now.

Estimating the depreciation which you can expect next year on your old car is a simple matter of determining its wholesale value and taking 25% of it. Obtaining the local auction price of your car is not much of a problem unless it is an unusual model. Just ask your dealer. He will gladly look it up in his most recent auction report, because the figure will make his trade-in allowance look even better. In the preceding sample computation the value of your 1952 Ford is estimated at $800, or nearly the average shown in the above table. Thus the depreciation used in the sample computation is $200 or 25%.

Estimating the depreciation you can expect on your new car is essentially a similar process with two changes. First, the problem requires that average annual depreciation rather than next year's depreciation be estimated. This calls for a guess as to how long you will keep the car. In the sample problem it is assumed that you will keep the new car the same length of time you kept the old one, three years. Second, both immediate and progressive depreciation should be included as they are both in the future. In the preceding sample computation it is assumed that you can buy a new Chevrolet "210" (V-8) tudor with standard transmission for $2000 (part of this is covered by the value, $800, of your old car so that $1200 additional is required). In February the immediate depreciation would have been about $269. Progressive depreciation was assumed to be 25% per year for three years. Thus the total and average annual depreciation are computed as follows:

Immediate Depreciation:

Retail price (clean-deal basis)	$2000
Less the auction price	−1731
(see preceding table)	
Immediate Depreciation ...	$ 269

Progressive Depreciation:

First year (25% of $1731) ..	$ 433
Second year (25% of $1298)	324
Third year (25% of $974) ..	245
Progressive Depreciation ..	1002
Total Depreciation in three years	$1271
Average Annual Depreciation ABOUT	$ 420

The current wholesale auction price for the new Chevrolet ($1731) was necessary for the above computations. This figure, for the car you want, may be more difficult to obtain from your dealer. Probably when you ask him the auction value of your used car, he will show you his most recent report on the local auction. If so, it's not difficult to check the price of your new car as well. If not, you may reasonably estimate its immediate depreciation at from $250 to $350 depending on whether it is an inexpensive or expensive model. If you feel yourself to be a poor hand at bargaining, add $150 to $200.

The retail price for the new Chevrolet ($2000) was also necessary. As we have seen, this price varies greatly between dealers. For each dealer it is easily determined by adding the outlay he requires to the wholesale value (not the dealer's allowance) of your old car ($1200 plus $800 in this case). The retail price quoted above is *not* the price suggested by the manufacturer. The latter has little or no significance. Dealers' prices are what they think you will pay, limited on the low side by the figure they paid for the car, limited on the high side only by the sky.

When should you turn in your car? Some people specify a mileage or chronological age at which it is best to trade. The answer is simple, but not that easy. The sample computation shown above is a flexible method of analysis designed to fit your situation. Try the analysis every so often and see how it comes out. When the pocketbook disadvantage of trading declines to the price of your ego, take the plunge. The new cars are beautiful. They do handle well. And they still have that wonderful new smell.

An examination of the insurance problems faced by a public corporation which is required by law to operate as a self-supporting business venture.

The Ohio Turnpike Insurance Problems

Clayton G. Hale

"WHAT is there to insure in a roadbed?" Close inspection will show that there are many insurable risks, at least in the case of the Ohio Turnpike. Attention is first called to the magnitude, complexity, and interesting variety of this vast construction project.

The cutting of a 200-foot wide swath across the northern, highly-developed portion of the State of Ohio, from the Pennsylvania Turnpike to the Indiana State line at a point just south of Toledo, has been planned since 1946. The Commission was created June 1, 1949; the Engineering Report and Traffic and Revenue Report were accepted and the route approved in September, 1951. It will take two and a half years to complete the project, which it is confidently anticipated will be fully opened to traffic precisely on the scheduled date of October 1, 1955.

Maj-Gen. (Ret.) Robert S. Beightler, Executive Director of the Ohio Turnpike Commission, is a hard-driving man who is known to be allergic to inaction or delay. He sets a steady pace for his staff of engineers, lawyers, businessmen, and numerous special consultants, as he carries out the program of the five-man Commission headed by Chairman James W. Shocknessy who certainly "doesn't need the work" and who almost dares anyone to interfere with the expeditious completion of this project. The staff testifies there is a lot of esprit de corps being mixed into the cement of this roadway.

About the author—

Clayton G. Hale is Professor of Insurance in the School of Business Administration of this University and is managing partner of The Hale and Hale Company, Property Insurance Underwriters of Cleveland, Ohio. During World War II he was attached to the Executive Offices of James Forrestal, as Assistant Chief, Insurance Division, Navy Department. He is presently insurance consultant to the Ohio Turnpike Commission, and to the Defense Department.

A Complex Operation

The project will involve the construction, ownership, and operation of 241.4 miles of toll road. It is more than just a roadway. There will be 17 toll plazas, 8 maintenance buildings, 4 pairs of combined restaurants and filling stations to be leased to separate specialist operators. There will be a police barracks, a 3-story headquarters office and garage building, a centrally located administration building with two-way radio communication system involving 3 antenna towers, a private teletypewriter service and 9 micro-wave relay stations.

The highway structures are numerous. Included are the following:

4	major bridges over rivers
30	bridges over streams
298	highway separation structures
41	railroad grade separations
251	draining structures
260	electric power crossings
256	telephone and telegraph crossings
56	gas and oil pipe crossings
12	main sewer and water pipe crossings

Some of the railroad grade separation structures accommodate more than one busy railroad over which there are regularly scheduled 852 train movements each 24 hours. In addition, the roadway itself will require 2.5 million linear feet of fencing for both sides of its entire length, 1.3 million linear feet of guard rail, a variety of markers, interchange and toll plaza lighting.

The maintenance of this project will require at least 75 motor vehicles ranging from maintenance trucks and wreckers to snowplows, fire engines, police cars, and ambulances either owned or under contract. The cost is expected to total between $300 and $326 million, and, as bonds in the latter amount have been sold to the public and are earning interest, it can be seen that time is, indeed, of the essence. At present this project is running comfortably *below* the cost estimates with practically every aspect now under contract—an achievement never previously accomplished by a turnpike authority.

When the turnpike is fully operating the Commission staff expects to be receiving, classifying, recording, and transporting toll receipts, mostly in coins and small-denomination paper money, in the amount of approximately $1.5 million each month and rising gradually to double that sum.

Insurable Risks

In dealing with these exposures, and their attendant risks, the Commission already is using 12 general types of insurance policies and surety bonds.

It is inescapable that additional forms will subsequently be added because, aside from such prudent additional protection desired as the project develops and goes into use on a self-sustaining and amortizing revenue basis, there are commitments for additional insurance coverages for the protection of the bondholders under a trust indenture which is relied upon by the 411 security houses that sold the bonds to the public and that have established a Committee of 7 of their members to watch the financial success of this venture.

Admittedly, few readers of these words will ever be concerned directly with the insurance problems of a turnpike. Even among practicing insurance men, nation-wide, there will be only a handful who will ever have occasion to deal with them. Although these construction projects may be unique, the risks, and the risk-bearing fundamentals involved, are not notably new except in technical adaptations which are hardly of enough general interest to be discussed here. The commercial insurance problems are in the nature of correctly diagnosing, and selecting and applying, various principles already well established.

Businessmen make a point of being acquainted in a general way with unusual business undertakings, and the brief development of the subject of this article may be of interest to some who may be preparing for other unusual projects. What, then, are the physical and legal risks to be encountered? And in what framework of concepts are these to be worked out? And ought the Turnpike Commission, being as large as it is, bear its own risks and purchase no insurance at all?

In considering some answers to these questions we will be mindful of the admonition which confronts students being examined by the Chartered Insurance Institute of Great Britain: "Please be as succinct as may be compatible with clarity."

In any country controlled by a totalitarian dictatorship operating with slave labor and denying rights of private property and indemnification for wrongful injury, there would be little purpose to discussing the "insurance considerations" of building a road. There is reason to believe that, even in this mid-twentieth century, construction work is being carried out in Russia with little need, under the Siberian system, to discuss insurance problems.

This is not to say that the risks will not exist. The *physical* risks of hostile fires in the buildings, windstorms in the bridge framing, workmen killed by accidents, trains wrecked on temporary turn-outs, and automobiles ditched at construction barricades (to name a few of the most common ones) would all be

present irrespective of the politics or the judicial system of any particular society. The *financial* risks might or might not be present. The framework question is: Shall we consider these perils and their consequences to be important, or shall we simply ignore them and say the State expects all losses to be absorbed by the citizens directly affected, or at least expiated by the punishment of additional slavery?

The 98th General Assembly of the State of Ohio created the Ohio Turnpike Commission by an Act which shows full consciousness that Ohio is in the United States of America, and which neatly balanced a delegation of enough right of eminent domain to acquire a right-of-way, by due process of law, on the one hand, with the full responsibilities of a self-supporting business venture, on the other hand. It specifically held the Commission to be subject to suit in contract and tort; and it trusted the Commission's initial funds and its income, in banks in both Ohio and New York City. There is no Siberian concept in this; the insurance implications are the same as those of any other business venture of similar size.

Size alone (except in the case of governments possessing the power of taxation) is no basis for becoming a risk-bearer, no matter how tempting at first thought, or lack of thought. Large size may simply mean large calamity. The true test is wide distribution of total exposure, well divided into isolated units of relatively small size. The chain store presents a typical business example, if it consists of, say, 450 stores with fixtures and merchandise valued at $8,000 per unit. Then risk bearing may be justified. The headquarters warehouse with values of perhaps $3,500,000 adds to the size but can't possibly be viewed as appropriate for individual risk-bearing. So, too, here: the "30 bridges over streams" need not be insured; but the "4 major bridges over rivers", being, in fact, all twin-bridges, the longest pair crossing the Cuyahoga River Valley south of Cleveland and measuring 2,682 feet 3 inches in length and costing $6,981,000, required insuring not only with respect to direct physical damage, but also as to consequential loss of revenues during any significant period of inoperation. Had there been any doubt in the minds of the insurance consultant, or of the Commission members, it would have been solved for them by the security dealers who wouldn't touch the bond issue without the insurance requirements in the trust indenture.

So, too, with all other decisions of insurance for any $325,000,000 corporation obliged to live within its income, and to pay off its debts on schedule. That the Ohio Turnpike Commission has earned the confidence of many businessmen, who are looking over its shoulder and watching its conduct and decisions, is perhaps attested by the facts that its work is on schedule, it has already opened a 21-mile link at the Pennsylvania border, it is keeping within its budget, and its bonds are presently quoted at a higher premium than any other of the numerous turnpike issues now on the market. In this, as in all other business ventures in a free and responsible society, commercial insurance has played its inconspicuous supporting role.

The smog of Los Angeles is only a recent example of a problem which has had a long history, but which is yielding before a determined attack by engineers and scientists.

Air Pollution Control and the Weather

E. Wendell Hewson

GENERAL concern with air pollution control is so recent in this country that many do not realize that it is a city problem of ancient standing. John Evelyn of England published in 1661 a pungent pamphlet on the topic, with the title page *FUMIFUGIUM: or The Inconvenience of the AER, and SMOAKE of LONDON DISSIPATED together With some REMEDIES humbly proposed By John Evelyn Esq.; To His Sacred MAJESTIE, and To the Parliament now Assembled.*
The following excerpt is typical of the style of the essay:

> The City of *London* resembles the face rather of *Mount Etna*, the *Court of Vulcan, Stromboli*, or the Suburbs of *Hell*, than an Assembly of Rational Creatures, and the Imperial seat of our incomparable *Monarch*. For when in all other places the *Aer* is most Serene and Pure, it is here Ecclipsed with such a Cloud of Sulphure, as the Sun itself, which gives day to all the World besides, is hardly able to penetrate and impart it here; and the weary *Traveller*, at many Miles distance, sooner smells, than sees the City to which he repairs.

Other citizens have written of smog in other cities at other times, less eloquently perhaps but with equal dissatisfaction.

The Dangers of Smog

Although medical opinion is divided on the possible long-range health hazards of smog as it ordinarily occurs, it may become lethal to susceptible persons under certain atmospheric conditions—fortunately rare. During the period 1–5 December 1930, severe air pollution occurred near Liége in the Meuse Valley in Belgium; several hundred persons suffered from acute respiratory troubles and 63 died on December 4 and 5. A similar disaster occurred at Donora, Pennsylvania during the last few days of October 1948 when 20 persons died and hundreds were stricken. Severe smog in Great Britain took a large death toll late in 1952. The number of deaths in Greater London for the five weeks ending 3 January 1953 was 15,114; the number was 9,125 for the same period a year earlier.

A fourth disaster has been less widely reported. On 24 November 1950 at Poza Rica, Mexico, an accidental release of hydrogen sulfide led to the hospitalization of 320 persons and the death of 22. It is significant that all these episodes occurred during the late fall when very light winds and the attendant poor

About the author—

Dr. Hewson is Professor of Meteorology in the Department of Civil Engineering of this University. He has been active in air pollution research since 1938, and since 1951 has been Chairman of the Air Pollution Abatement Committee, American Meteorological Society.

diffusion of contaminants occur most frequently. The establishment of control measures, currently being pressed on a broad front in numerous places, gives promise that such accidents will be prevented in the future.

How Weather Affects Smog

Three meteorological quantities influence the dispersion of smoke and gases: wind direction, wind speed, and wind turbulence. The wind direction determines the general area into which smoke will move. Other things being equal, the concentration downwind from a source will be inversely proportional to the wind speed. The action of wind turbulence is not always recognized, but it is of primary importance in atmospheric diffusion processes. Wind turbulence is manifested by fluctuations of wind direction and speed. When the turbulence is strong, diffusion is good and stack emissions are rapidly diluted with clean air. On the other hand, very slight turbulence results in poor diffusion and slow dilution.

The degree of turbulence depends in part on the vertical temperature distribution in the lower layers of the atmosphere. When the temperature *decreases* rapidly with height, turbulent motions are enhanced and smoke is diffused upward and dispersed rapidly. A slow temperature decrease with height inhibits upward diffusion. Frequently there are atmospheric layers in which the temperature *increases* with height. Such a layer is called a temperature *inversion* layer, and it has the property of extreme stability which tends to oppose and suppress turbulence. The smog troubles of Los Angeles are closely related to the presence over the city, in the fall, of a more or less permanent inversion layer which is associated with the Pacific high pressure system extending over the area during that season. This is, incidentally, the very same weather condition which is responsible for the wonderful "sunny" part of "Sunny California." This inversion layer sinks lower and lower as the fall advances and, with the mountains to the north and east, acts to prevent the city's polluted air from escaping.

Air Pollution Control

The accumulation of enough smoke to produce serious smogs may be largely prevented by city and county smoke ordinances. A sense of responsibility to the community at large has led industry, with a few exceptions, to cooperate actively with enforcement agencies. Penalties for infringement are no longer as severe as in the England of 1306, where an imprudent artificer was executed for using sea-coal in his furnaces, but are nevertheless generally effective.

Cities are becoming increasingly aware of smoke from private incinerators and of automobile exhausts as sources of potent pollution, and the ordinary citizen is expected to do his share to keep the atmosphere of his city clean. Where the problem is acute, as in Los Angeles, private pollution by householders or car owners may have to be controlled by local ordinances.

The scientific use of weather and climatic information has already contributed to more efficient air pollution control, and it may be expected to play an increasingly important role in the future. The application of meteorological knowledge may enter the control of pollution from an industrial plant in the selection of its location, in its design and equipment, and in its day-to-day operation. In addition, communities and states should take weather and climatic factors into account in laying out zones for industrial use, in identifying causal factors in existing pollution problems, and in establishing regulations regarding allowable limits of atmospheric contamination. There are two general aspects of weather and climate which should be considered.

The Influence of Regional Weather and Climate

During any given season the properties of the atmosphere vary widely from one area of the continent to another. In one region the winds may be generally light and the diffusion of smoke and gases slow; in another the opposite may be true, with predominantly strong

and variable winds and consequently rapid diffusion.

Thus if a site for a new industrial plant is being considered, the pollution hazard will be minimized by choosing a geographical area of the country which has, in addition to other requirements, a climatic regime which is favorable for atmospheric diffusion. The important characteristics of a region may be found by an analysis of a long-term climatic record at a single representative station in the area or by an analysis of appropriate weather maps.

The Influence of Local Weather and Climate

Once a suitable geographical area has been selected, then the second aspect should be considered. This is the local variation in weather and climate; it is little realized how great this variation often is. For example, there may be greater differences in weather and climate between various local areas in a city than there are between two cities several hundred miles apart. These local differences are dependent on such factors as: topography; soil constitution; degree, type, and location of vegetation; and location of built-up areas. The variations are so complex as to defy prediction unless such predictions are based on detailed local weather observations.

If such data are not already available, there is no alternative but to undertake a program of observations at a number of sites. Ideally such a program should extend over a period of at least a full year, but in certain areas where seasonal weather differences are small a shorter period may be sufficient.

Meteorology may contribute to the solution of a number of specific pollution problems. The following examples are based on recommendations of the Air Pollution Abatement Committee of the American Meteorological Society published in 1953.

City Planning

City planning commissions could with advantage consider weather and climate, both regional and local, when laying out zones for industrial development and drawing up regulations. The zoning should be such that pollution from industry is a minimum in residential and business districts.

Not only should the speed and direction of prevailing winds be taken into account, but the variation of mean turbulence and hence diffusion potential with wind direction should also be evaluated. It might be found that the most satisfactory zoning was that which resulted in relatively frequent pollution but in low concentrations in residential and business areas rather than the severe but infrequent pollution to be expected from another arrangement of zones.

Plant Location

In addition to the general weather and climatic evaluations for satisfactory plant location mentioned above, the possible role of topographic features should be emphasized. Over flat areas a knowledge of the regional climate may be sufficient for an assessment of the pollution potential. On the other hand, in highly irregular terrain, e.g., in a valley, local meteorological conditions are extremely variable and may lead to dangerous accumulations of pollution. Many of the most acute pollution problems of the past have occurred in valleys. Thus, although a valley location may have many other attractive features, the possible pollution hazards at such a site require especially careful scrutiny.

Plant Design

There are a number of ways in which meteorological factors may be applied in plant design. The shape and orientation of plant buildings is important. Around some plants a downwash of stack gases occurs when the wind speed exceeds certain critical values. These critical speeds vary with the aerodynamic properties of the plant structures and with wind direction. A climatological study of the frequency, duration, and directional distribution of strong winds will permit plant design and orientation to minimize this problem.

Stack height is a second important factor.

The pollution hazard is reduced by higher stacks. An analysis of the local and regional climate will indicate what stack height is necessary to limit surface pollution to acceptable levels. Where the stacks are mounted on or near large plant buildings, as with electrical power generating stations, a wind tunnel study of possible aerodynamic downwash may be necessary to establish an adequate stack height.

Thirdly, the required capacity of plant equipment for precipitating, washing, and absorbing pollutants may be determined from weather data. It may prove inordinately expensive to install equipment which will precipitate and wash out a very high percentage of solids and gases evolved in plant processes. A meteorological analysis will show what percentage should be removed in order to limit surface concentrations to tolerable values for various weather conditions, and hence indicate the capacity of precipitators and washers needed. If a component of the effluent is to be absorbed for by-product manufacture, the required capacity can be similarly determined.

Plant Operation

Weather information will also assist in the efficient scheduling of plant operations. In certain industrial processes it is possible to vary the output of contaminants over a considerable range. Plants with such flexibility may minimize pollution nuisance by increasing emission when diffusion is good and reducing emission when diffusion is poor. The scheduling of emission in this way may be based on either actual or forecast meteorological conditions.

Market fluctuations are important in plant operation. When part of the effluent is removed for the manufacture of by-products, it may be desirable to vary the absorption in accordance with market requirements. A survey of meteorological factors will show the extent to which absorption can be reduced and emission increased without creating a pollution problem when markets are slack.

Certain special process operations are carried out at irregular intervals. It may be necessary at times to dump fuming substances into the open air. Pollution problems can be avoided if such dumping is correlated with weather conditions in such a way that the fumes are carried away from inhabited areas and rapidly dispersed. A weather forecast for such an operation would specify not only rate of diffusion and wind direction but their persistence as well.

A final example is that of emergency precautions. In industrial operations there is often a danger that noxious gases or smokes will be accidentally—and suddenly—released. It is therefore important to have well laid plans for the emergency evacuation of buildings likely to be affected. A survey of local weather and climate will show how far from the accident center the evacuation of personnel will be necessary.

Air Pollution by Aeroallergens

The health problem presented by air-borne pollens, spores, rusts, and smuts, sometimes called aeroallergens because of the allergic reactions they induce in sensitive individuals, is receiving increasing attention by public health authorities. The fact that hay fever and asthma affect a greater proportion of the population each year is a cause for concern.

It might be thought that simple hay fever presents less of a hazard to health than asthma. However, the records show that 30 to 40 per cent of hay fever patients will develop asthma if the disease runs unchecked. Several million persons in the United States find hay fever or asthma a definite health problem, and ragweed pollen is probably the worst offender.

Ragweed Prediction

There is good evidence that antecedent weather and climatic conditions affect the production of pollen, either by a direct influence on production of pollen in the anther of the plant, or by providing growing conditions which foster ragweed growth and hinder other growth or vice versa. It thus appears that forecasts of the severity of the ragweed season could be made several months in advance on

the basis of weather data for the spring. Such forecasts would be valuable to the late summer vacationer, in helping him decide whether this is the year to visit Aunt Minnie in Peoria or to head for the ragweed-free north woods.

Pollen grains are released when the anthers containing them break. From the time of release, weather conditions determine the distribution of the pollen. The distance to which it is carried and the concentrations in which it occurs depend upon turbulence and wind speed. Thus day-by-day forecasts of pollen concentrations for a day ahead during the season may prove to be feasible. Accurate forecasts of this type would aid the allergist in planning his program of treatments for his patients.

Ragweed Control

Possible control measures for ragweed based on an evaluation of the area of dispersal have been proposed. The need for such control measures is urgent, since the incidence of hay fever is steadily increasing from year to year. It is probable that this increase is due primarily to the continuous increase of hay-fever plants such as ragweed, which have been given favorable environments by some of man's farming and urban land-use practices.

Ragweed may be controlled in and near cities by programs of spraying stands of ragweed in vacant lots and elsewhere with the herbicide 2,4-D. Several programs of spraying have been initiated, but the benefits of the programs have not been adequately assessed. Meteorological studies could serve the important functions of helping to locate the offending stands of ragweed and of assessing the benefits of spraying.

The Future of Applied Meteorology

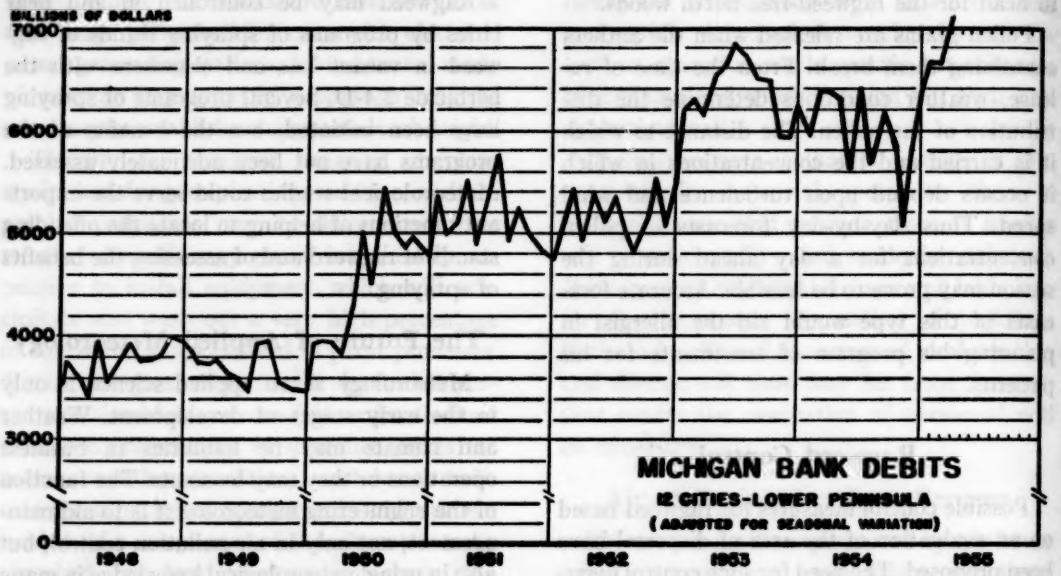
Meteorology as an applied science is only in the early stages of development. Weather and climate may be liabilities in business operations or they may be assets. The function of the engineering meteorologist is to aid management, not only in air pollution control, but also in using meteorological knowledge in many other ways to further efficient and economic conduct of operations. The next few years are likely to see a rapid development in this field.

FORECAST OF DETROIT EDISON BUSINESS TREND

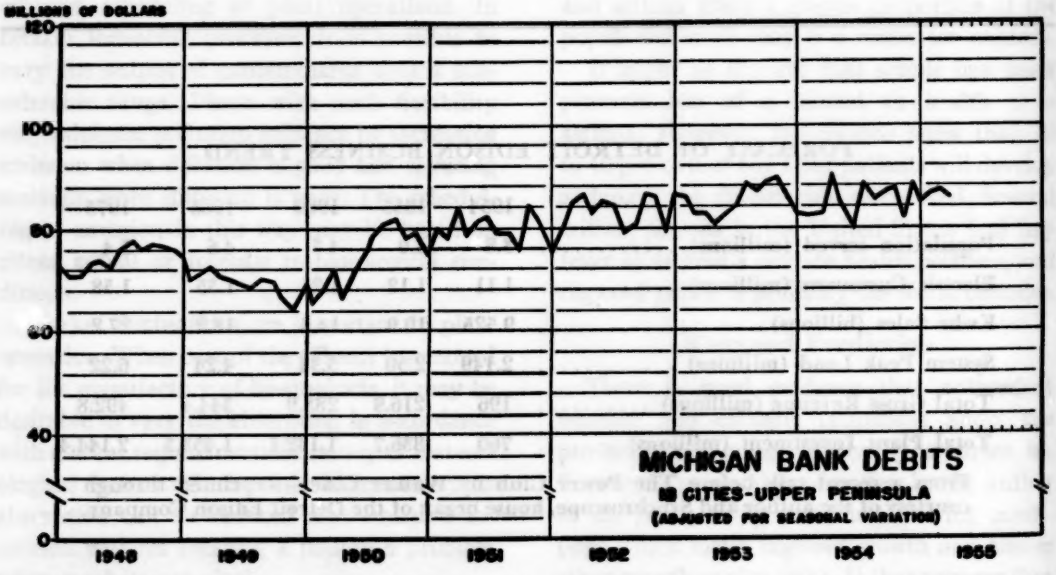
	1954	1955	1960	1965	1975
Population served (millions)	3.8	4.0	4.3	4.6	5.4
Electric Customers (millions)	1.11	1.12	1.24	1.35	1.58
Kwhr Sales (billions)	9.525	10.9	14.3	18.2	27.2
System Peak Load (millions)	2.149	2.50	3.34	4.24	6.22
Total Gross Revenue (millions)	196	216.9	283.9	344.4	492.8
Total Plant Investment (millions)	760	836.7	1,132.1	1,453.3	2,144.4

From a recent talk before The Power Club by Walker Cisler—Reprinted through courtesy of the author and Synchroscope, house organ of the Detroit Edison Company.

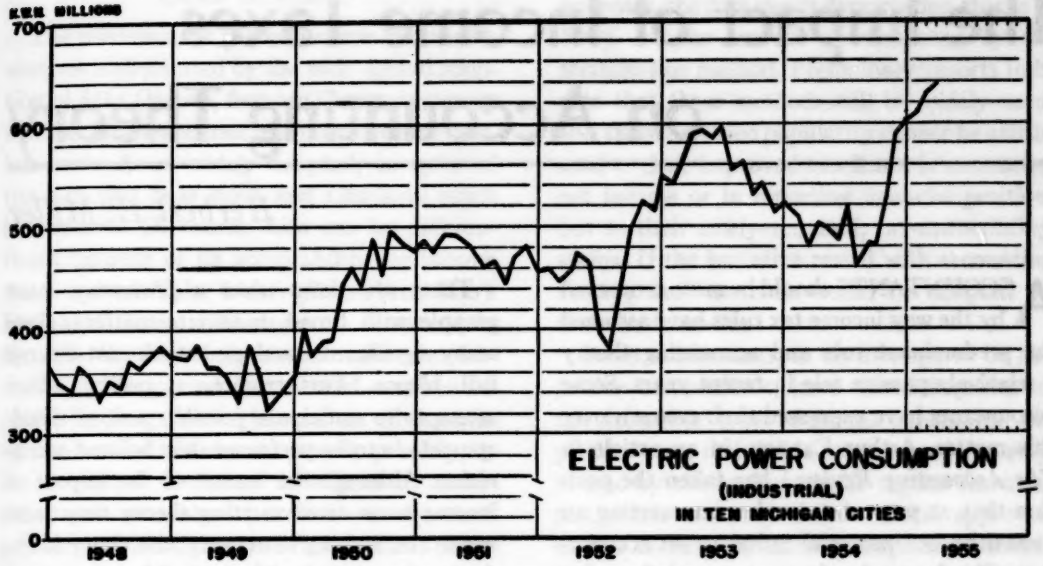
Michigan Business Indicators



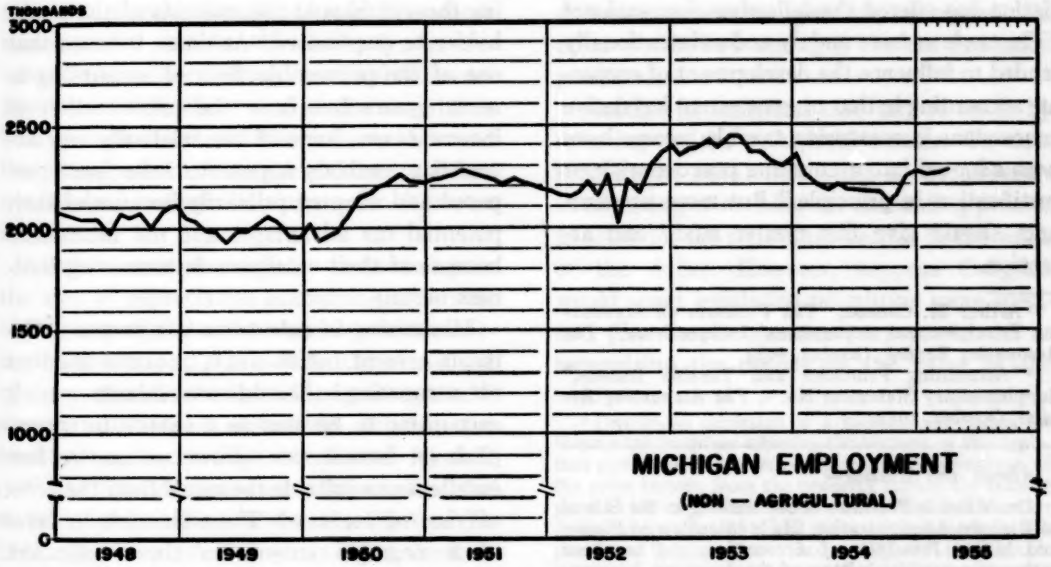
BANK DEBITS—THE MOST INCLUSIVE MEASURE OF BUSINESS ACTIVITY—**In the Lower Peninsula, first-quarter debits pushed beyond the 1953 record high as business activity generally responded to peak industrial output.**



UPPER PENINSULA BANK DEBITS—**Throughout the first quarter, checkbook spending in the Upper Peninsula showed continued stability at about average levels.**



POWER CONSUMPTION—**The present record levels of industrial output are best reflected by the continuing rise in industrial use of electric power.**



MICHIGAN EMPLOYMENT—**Current output of Michigan manufacturers is comparable to that achieved in the peak months of 1953. A study of these periods on this chart and on that for electric power consumption (above) points up a significant increase in mechanization.**

An accountant protests against the influence that tax considerations often have on accounting practices.

The Impact of Income Taxes on Accounting Theory

Herbert E. Miller

ACCOUNTANTS should be more concerned by the way income tax rules have assumed the predominant role and accounting theory a relatively passive role in recent years. Some accountants have expressed their concern over this matter. Arthur Cannon, in an article in *The Accounting Review*,[1] has taken the position that at present tax rules are exerting an unhealthy but powerful influence on accounting: "Tax law and enforcement are influencing accounting principles much more than the opposite." The Committee on Concepts and Standards Underlying Corporate Financial Statements of the American Accounting Association has offered the following observation:[2] "The tax laws have unduly and unintentionally tended to influence the development of corporate accounting in that to some extent legislative concessions in measuring taxable income have been adopted into accounting practice without justification in principle." But more accountants should give this matter study and attention.

There are times when a profession must grapple with broad, indefinite matters, since many significant developments do not emerge full bloom. Furthermore, a policy which attempts to anticipate possible serious developments is to be preferred over belated recognition. Although the matter of the impact of income taxes on accounting theory may seem vague and lacking in urgency, the above introductory comments, if defensible, appear to justify a consideration of the topic at this time.

In many instances, accounting controversies are formed by disagreement over emphasis and objectives. What are the objectives of accounting theory? Should the interests of the stockholder be emphasized? At times, it seems that one of the prime objectives of accounting in recent years has been the minimization of income taxes. Some of the relatively new accounting methods appear to have been proposed and adopted primarily because of their potential tax advantages and not necessarily because of their excellence in measuring business income.

Minimizing income taxes is a proper activity, in general, but should it be one of the aims of accounting? Should accountants permit accounting to be used as a vehicle to accomplish an income tax reform, no matter how excellent or equitable the result from the point of view of business? There is much in favor of a negative answer to these questions. Accounting theory should be directed toward broader objectives, such as the determination and reporting of business income in order that

[1] Arthur M. Cannon, "Tax Pressures on Accounting Principles and Accountants' Independence," *The Accounting Review*, October, 1952.

[2] "Accounting Principles and Taxable Income," Supplementary Statement No. 4, *The Accounting Review*, October, 1952.

About the author—

Dr. Miller is Professor of Accounting in the School of Business Administration. He is co-author of Finney and Miller, *Principles of Accounting*, and has been active on many committees of the American Accounting Association and the American Institute of Accountants.

This article is a condensation of remarks before the Georgia Accounting Institute, October 2, 1954.

the results of operations may be set forth fairly, not to produce dollar figures that will decrease income tax payments.

Cases in Point

The predominant role of income tax considerations is illustrated by the wide-spread adoption of Lifo (last-in, first-out) as an inventory method. Its predecessor, the base stock method, has never been widely adopted, in spite of the fact that base stock and Lifo have much in common. Of course, Lifo can be differentiated because of its acceptability for income tax purposes. This "blessing" has been Lifo's life blood. When Lifo came on the scene in the late thirties, those accountants who immediately supported the method emphasized primarily the potential income tax advantages of the method. Of some interest, possibly, is the continued dislike of Lifo held by many prominent accountants, at least so expressed privately. Although these accountants have never embraced the method, Lifo adoptions by their clients continue to increase in number. The reason seems clear; it is the predominant role of income tax considerations. Incidentally, there is no intention here to imply that accountants should like all accounting methods recommended to clients. Obviously, an accountant is neither bad nor unethical to recommend Lifo to a client and at the same time hold an opinion that Lifo has not improved the framework of accounting theory and has not resulted in financial statements of greater excellence.

Another example may be forthcoming in the area of depreciation accounting. The sum of the years-digits method has been in accounting textbooks for years, with almost no use of the method by business. Accounting teachers used to receive some mild criticism for teaching such an impractical and ignored method. Straight-line depreciation was the method used, almost without exception. In 1954, the sum of the years-digits method became acceptable for income tax purposes, thereby giving businesses larger depreciation deductions in the earlier years of an asset's useful life. Another long-established but infrequently-used method of depreciation, the declining balance method, was made more attractive in 1954 by increasing, for income tax purposes, the first year's depreciation charge to 200% of the amount as computed by the straight-line method. Preliminary reports indicate that these methods will be widely used. But their increased popularity cannot be attributed to their improved excellence in measuring net income or in reporting financial position, but to their newly-acquired, tax-deductibility status. If the initiative rested with accounting theory, such methods would be adopted on their basic merits.

Some accountants, in an attempt to be objective and realistic, have raised inquiries of the following type: Suppose percentage depletion[3] were deductible for tax purposes *only* if used by the business in its regular financial statements and only if its auditors approved of the method by issuing unqualified short-form opinions, thus representing that the method conformed with generally accepted accounting principles. The question is, would percentage depletion, which is not now supported by generally accepted principles of accounting, become generally accepted? In other words, how strong is the tax deduction pressure?

Another hypothetical case can be made by referring to the price-level matter. To date accountants have made little, if any, progress in adjusting or revising the accounting process to allow for the significant decline in the value of the dollar. However, suppose Congress would enact legislation permitting some specified plan for income tax purposes aimed at recognizing the decline in the value of the

[3] Percentage depletion is a method acceptable for income tax purposes whereby the amount of the depletion deduction is measured by taking a percentage of the gross income from the property during the taxable year. In the case of oil and gas wells the allowance for depletion may be 27½% of the gross income from the property, but may not exceed 50% of the taxable income of the taxpayer (computed without allowance for depletion) from the property. Thus, over the years, the aggregate depletion taken for tax purposes may exceed the cost of or investment in the natural resource.

dollar, and, as in the case of Lifo, require its adoption in the books of account if the method were used by the taxpayer in computing his income tax liability. There is probably some justification for expecting that the method would be quite widely adopted. Again the point is, the initiative would not have been with accounting theory, and the reasoning and decisions generally would not have been made in terms of what is the best accounting.

If we admit that

(1) in some instances (important ones) accountants can get business to adopt an accounting procedure only if it has prospective income tax advantages;

(2) in some instances accountants are pressured to go along with bad accounting just because it is acceptable for income tax purposes,

isn't it relevant to inquire whether the income tax is acting, in a subtle way, as a regulatory device or regulatory instrument as far as accounting is concerned?

Because regulation generally acts as a restraint on progress, it is likely that a governmentally regulated accounting would, in time, reflect such a condition. Most accountants seem to hold that view, and usually cite the regulated accounting of railroads as an example. A body of regulated accounting theory would not be conducive to a healthy accounting profession. The fact that the "regulation" has taken a less obvious form and prevails because of the existence of a condition where an income tax blessing apparently must be secured before new accounting procedures can be sold to business, does not alter the potential damage to the accounting profession.

Taxable Income and Business Income

There is another point that may be considered. Although accountants have often stated that acceptability for income tax purposes does not grant a status of acceptability for accounting purposes, it is probably a fact that taxable income and accounting income have generally stayed fairly close together. It is possible to contend that there is little merit in keeping in harmony concepts having such diverse objectives as the measurement of a tax on business in contrast to those relating to the measurement of income for purposes of accountability to stockholders and others. In some cases it can be argued that a cash basis of accounting is suitable and equitable for measuring an income tax liability. Or, that for purposes of national policy, new investment in fixed assets should be subject to accelerated amortization. It does not necessarily follow that such procedures make sense when the objective is to match costs against revenues. Many proposals or techniques may make sense in the area of tax policy and make little or no sense from an accounting point of view. Werntz has expressed this observation as follows: "It can even be agreed that many or most tax rules which are subject to criticism accounting-wise are necessary or desirable taxwise."[4]

As a result of keeping taxable income and accounting income close together, accounting theory, or the framework of generally accepted accounting principles, has been stretched and distorted by some significant inconsistencies. For example, both Lifo and Fifo (first-in, first-out) inventory accounting are generally acceptable. But how can two such diverse methods, which produce such different net income figures and working capital ratios, be equally acceptable? Under Lifo an inventory shown as $3,000,000 might amount to $4,500,000 if Fifo inventory procedures had been used. How can both be correct? How is it possible to contend that such diverse results can properly emerge from one body of generally accepted principles?

Another example may be provided by the "new" depreciation methods now acceptable for income tax purposes. If a business elects to use either the declining balance method or the sum of the years-digits method, they may be applied only to new assets. This will result in a situation where two different depreciation methods will be in use simultaneously on iden-

[4] William W. Werntz, "The Impact of Federal Legislation Upon Accounting," *The Accounting Review*, April, 1953.

tical classes of assets. For instance, 70 percent of the factory machinery may be being depreciated by the straight-line method and 30 percent by the sum of the years-digits method. Such a depreciation policy will influence the amount of net income reported. In spite of this, the accountants' opinion will no doubt continue to refer to the financial statements as reflecting "the results of operations in conformity with generally accepted principles of accounting . . ." A more apt description might be achieved if a phrase were added to the effect that the financial statements reflect also the results of certain policies adopted for income tax purposes.

Since World War II, the accounting profession, through committee bulletins, research department releases, and articles, has campaigned to sharpen the concept of periodic net income. The resulting emphasis on short-run net income has served to give a position of supreme importance and significance to that single, residual figure. This explains the concern of accountants over any distortion of the net income figure by extraneous or non-recurring items. The possibility of distortion also exists whenever the income tax treatment differs from the accounting treatment of an item; the net income reported may be significantly influenced if the amounts involved are material. Therefore, whenever the tax treatment differs from the accounting treatment, accountants are inclined to insert charges or credits in lieu of taxes to avoid the distortion.[5] Such accounting gyrations, though well-intentioned, probably are not understood by the business community and almost certainly not understood by the general public.

It is possible that the net income figure has been overemphasized to the point where its computation has received more than its fair share of the accountant's attention. Professor Vatter shares this view:[6] "However, the measurement of income is not the sole, or even the most important, aim of accounting; in fact, there are grounds for the belief that the accountant has overemphasized and overworked the notion of income far past the point of diminishing returns." He continues with the following observation: "It is impossible to present a single income figure that will begin to meet all the demands which will be made upon it; further, the over-emphasis upon income calculation puts undesirable limits on not only the form but the significance of financial reports. The pre-eminence of an income figure in a financial report not only implies that that figure has a specific significance to all readers but suggests finality and precision of measurement which cannot be achieved."

Conclusions

If accountants were to place more emphasis on reporting in the broad sense of the term, and less emphasis on income computation, better accountability might be achieved. Perhaps if the features of the funds statement were combined with the statement of income

[5] An example of this practice is found in the 1954 Annual Report of International Minerals & Chemical Corporation. The report shows the following:

EARNINGS BEFORE INCOME TAXES		$7,113,979
INCOME TAXES:		
Federal income taxes (no excess profits tax)	$	20,000
Other income taxes		95,000
Deferred Federal income taxes		955,000
		$1,070,000
NET EARNINGS FOR THE YEAR		$6,043,979

The deferred item of $955,000 is not a tax expense of 1954. The corporation has elected for tax purposes to amortize certain facilities over a sixty-month period, but is charging only normal depreciation in its accounts. In this case the current tax bill is materially reduced since the annual difference between the amortization and normal depreciation amounts to approximately $1,836,000. The deferred tax item is used apparently to lessen the distortion between earnings before income taxes and income taxes payable currently.

However, the relatively low provision for Federal income taxes of $20,000 suggests that there are other material differences between tax treatment and accounting treatment. The text of the report makes the following rather inadequate reference to this matter. "The provision of $20,000 for Federal income taxes for the fiscal year ended June 30, 1954 was determined on the basis of the taxable income after statutory deductions which included percentage depletion, depreciation, gains and losses on disposition of properties and other less important items."

[6] William J. Vatter, "The Fund Theory of Accounting and Its Implications for Financial Reports," page 35. Chicago: The University of Chicago Press, 1947.

and expense to show the sources and amounts of resources coming under management's custody during the period, the disbursement and utilization of such resources, and major commitments and financing plans, short run income determination might be de-emphasized. The general objective would be to broaden or expand the focus. Business affairs are too complex to expect that they can be neatly summarized by a single dollar figure, namely, net income.

If this de-emphasis could be achieved, there would be less concern over distortion and less reason to be concerned whether an advantageous income tax treatment squared with generally accepted accounting. After all, why should tax methods coincide with accounting methods?

It is also possible then that the pressure on accounting theory to accomodate tax theories would subside. Then accounting procedures and methods of reporting could be considered on their merits without abandoning or adopting them for tax purposes. This would restore to accounting theory the freedom and initiative it should have. It would also avoid the risk of losing the public's confidence in the accounting process generally. It is hard to respect a body of theory that has been distorted and made inconsistent by income tax theories.

WHAT TO READ **(Continued from page 8)**

Equally good reading is an historical "whodonit" by R. Gordon Wasson. This is *The Hall Carbine Affair, a Study in Contemporary Folklore*, Pandick Press, Inc. This is not a new book. It was privately printed in 1941, was very difficult to come by, and was reprinted in 1948 because of a growing and insistent demand. It tells the documented history of an episode in the life of J. Pierpont Morgan which was later distorted and magnified. Morgan had financed as a banker the purchase and sale of Civil War firearms involving some shady dealings by the principals. Although there was no evidence of Morgan's involvement the story grew into the distorted accounts in Gustavus Meyers' *History of the Great American Fortunes*, Winkler's *Morgan the Magnificent*, and Matthew Josephson's *The Robber Barons*. Here is some of the best debunking of history on record and very good reading in the bargain.

* * * * *

If the above references serve to whet the appetite for business history, try the more substantial volume by Miriam Beard, *The History of the Business Man*, The McMillan Company, 1938. It has been on the shelves now for some years but is not read by businessmen as often as it should be.

* * * * *

A recent volume, *The Management Team*, edited by F. C. Bursk, Harvard University Press, contains papers delivered at the Twenty-Fourth National Business Conference. The theme is "Releasing the Full Potential of the Management Team." Our choice is the introductory article by General Lucius D. Clay, *The Art of Delegation*.

By the Editor

Recent Publication

OF THE BUREAU OF BUSINESS RESEARCH

THE MARKETING OF AUTOMOTIVE PARTS

by Charles N. Davisson

This comprehensive study identifies and describes the processes and procedures used in the marketing of automotive parts and analyzes the connection between procedures and marketing requirements of particular importance in the automotive industry. Specific attention is given to distribution channels, price structures, and patterns of competition. Several typical price structures are examined in terms of (a) the functions performed at the various levels of distribution, (b) the patterns of competition characteristic of this industry, and (c) the competitive significance of functional pricing.

Other marketing problems discussed include the economics of redistribution, manufacturer-distributor relations, source selection, the use of branches, and the make-up of the product line.

This study, made possible by a grant from industry, is based primarily on material obtained in field interviews.

There are twenty-eight charts, fourteen diagrams, and sixty-seven tables.

The twenty-five chapters are organized into six sections as follows:

I. The Marketing Job to be Done

II. Patterns of Competition for Repair Service

III. The Marketing Structure for Selected Product Groups (12 chapters concerning 10 product groups)

IV. The Vehicle Manufacturer as a Marketer of Parts

V. The Wholesale Structure

VI. Competitive-Functional Pricing

Findings are summarized in a forty-page Synopsis.

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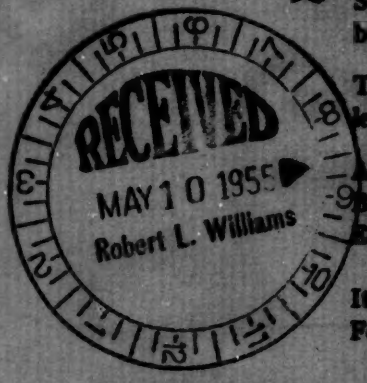

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